CLOSING EXAMINATIONS



FOR

# PROVINCIAL SCHOOL LICENSE.

DECEMBER, 1894 AND JUNE, 1895.



EXAMINERS, 1894-95.

Mathematics — THOMAS HARRISON, M.A., LL.D.
Language and Literature — PROF. H. S. BRIDGES, M.A., Ph.D.
Natural Science and History — PROF. L. W. BAILEY, M.A., Ph.D., F.R.S.C.
Teaching, School Management, etc — G. W. MERSEREAU, M.A.
Industrial Drawing, Geography, etc — MR. J. VROOM.
Reading — MISS S. JEAN LANDERS.
Domestic Economy — MRS. M. M. DESOYRES.



Closing examinations shall be held each year at Fredericton, St. John, and Chatham, beginning at 9 o'clock, a. m., on the second Tuesday in June. For Student Teachers in the French Department, and other Candidates for Third Class License a closing examination for Third Class only shall be held at Fredericton twice each year, beginning respectively on the Tuesday next preceding the last Friday of May and on the Tuesday next preceding the week in which Christmas falls. All candidates who are required to be examined in Reading at the Fredericton station, shall present themselves in the Assembly Hall of the Normal School at 2 o'clock, p. m., on the day immediately preceding the date fixed for the opening of the written examination, for examination in Reading.— Reg. 31, 3.

To be eligible for the Closing Examinations all Candidates, whether for Advance of Class or otherwise, must have previously passed the Preliminary Examinations.

# Education Department, New Brunswick.

ANNUAL EXAMINATIONS, 1895.

## GRAMMAR SCHOOL.

## GREEK.

H. G. BRIDGES, A.M., PH.D., *Examiner* . . . . . *Time, 2 hours.*

1. Translate into English:

*a.* Xen. *Anab.* I. 8, 19–20: πρὶν δὲ τόξευμα . . . ἐλέγετο.
or Xen. *Anab.* II. 6, 6–7: Ταῦτα οὖν . . . ὁμολόγουν.

*b.* Hom. *Il.* I. 234–244: ναὶ μὰ τόδε . . . οὐδὲν ἔτισας.
or Hom. *Il.* XVIII. 368–379: Ὣς οἱ μέν . . . δεσμούς.
or Hom. *Il.* XXI. 324–333: Ἦ, καὶ ἐπῶρτ' . . . φλόγα πολλήν.
or Hom. *Il.* XXII. 260–269: Τὸν δ' ἄρ' . . . πολεμιστήν.
or Lysias v. 36: οὐκ οὖν δεινόν . . . κολάζεσθαι;
or Herod. v. 57: Οἱ δὲ Γεφυραῖοι . . . ἔργεσθαι.
or Soph. *Ajax*, 430–440: αἰαῖ . . . ὧδ' ἀπόλλυμαι.
or Plat. *Apol.* 16: ὃ δὲ ταῦτα . . . πρὸ τοῦ αἰσχροῦ.

*c.* Eur. *Alcest.* 614–624: Ἥκω κακοῖσι . . . γενναῖον τόδε.
or Eur. *Hec.* 850–860: ἐγὼ σέ . . . κοινὸν στρατῷ.
or Eur. *Med.* 282–291: δέδοικά σ' . . . μέγα στένειν.
or Aesch. *P. V.* 1061–1073: εἰδότι τοι . . . στερραῖς δίναις.

*Value, 40.*

2. Parse: δηχθεῖσα, θανεῖν, ἔβλαψε, πάθῃς, λάθοι, διέφθορα, ἠψάμην, πέπρακται, ἔασον, ἐλεῖν.

*Value, 15.*

3. Compare: καλός, φίλος, πολύς, μάκαρ, μέλας, πέπων, σώφρων, and also the adverbs formed from the first three.

*Value, 10.*

4. What is meant by syllabic and temporal augment? How are α, ε, αι, οι, αυ, respectively, augmented? Give the imperfect (first sing.) of ἔχω, ὁράω, περιστέλλω, δυστυχέω, προχωρέω, αἱρέω, φράζω.

*Value, 15.*

5. What is the force of the particle ἄν? How does it affect the optative mood? Distinguish, εἰ λέγεις, εἰ λέγοις, ἐὰν λέγῃς, ὅτε ἔρχεται, ὅταν ἔρχηται.

*Value, 10.*

6. Correct the following constructions, adding your reason in each case: (α) εἰ τοῦτο λέγῃς, ἁμαρτάνεις: (β) ἦν τοῦτο λέγοις, ἁμαρτάνοις: (γ) οὐκ ἔχω ὅποι τραποίμην: (δ) ταῦτα γράφω, ἵνα ἔλθοι. Give the Latin for the last when corrected.

*Value, 10. — Total value, 100.*

# GRAMMAR SCHOOL.

GRAMMAR SCHOOL. **Latin.** *Time, 2 hrs*

PROF. H. S. BRIDGES, M.A., Ph.D. Examiner.

| Values | |
|---|---|
| 12½ each | 1. Translate into English : |
| | A. Cæs. Bell. Gall., Bk. I., Cap. 32 : Quum ab his.....essent perferendi, [or] |
| | Cæs. Bell. Gall., Bk. II., Cap. 18 : Loci natura.....circiter trium. [or] |
| | Livy, Bk. 21, Cap. 37 : Tandem nequiquam.....deduci possent. |
| | B. Verg. Æn. I., Vv. 600—610 : Grates persolvere dignas .....vocant terræ. [or] |
| | Verg. Æn. II., Vv. 360—369 : Nox atra.....mortis imago. [or] |
| | Verg. Æn. VI., Vv. 637—647 : His demum exactis..... pulsat eburno. |
| | C. Horace, Odes Bk. I., Ode 22, Vv. 1—16 : Integer vitæ..... arida nutrix. [or] |
| | Hor., Odes Bk. III., Ode 12, Vv. 1—12 : Miserarum est.....excipere aprum. [or] |
| | Hor., Sat. Bk. I., Sat. 6, Vv. 42—52 : At hic.....ambitione procul. [or] |
| | D. Cic. De Senec., Cap. 17, Sec. 60 : Hac igitur fortuna..... senectutis auctoritas. [or] |
| | Cic. De Amic., Cap. 13, Sec. 48 : Quamobrem si cadit..... incommodis contrahantur. [or] |
| | Sall. Bell. Jug., Cap. 28 : At Jugurtha.....domum discedunt. [or] |
| | Cicero Pro. Mil. Cap. 33, Sec. 89 : An consules..... nullam haberetis. [or] |
| | Cic. Pro. Leg. Manil., Cap. 19, Sec. 57 : Quo mihi etiam..... est constitutus ? [or] |
| | Tac. Ann. I., Cap. 62 : Igitur Romanus.....feralia debuisse |
| 10 | 2. Parse fully : Veniet, veniat, vicissent, vinctus, refertus, abstulit, auderent, consuerint, eripi, pulsas. |
| 8 | 3. Write out in full : [1] imperat. act. of fero ; [2] imperf. subj. of patior ; [3] fut. indic. of fio ; [4] imperf. subj. of redeo. |

| | |
|---|---|
| 10 | 4. Turn into Latin: He gave me his own books. He gave me these books. He gave me the same books. Some one did it. He himself did it. The other did it. Another did it. The rest did it. No one did it. Every one did it. |
| 8 | 5. Translate literally, and rewrite in Oratio Obliqua: "Ite obviam Hannibali, exornate urbem, diemque adventus ejus consecrate, ut hunc triumphum de cive vestro spectetis." |
| 14 | 6. Translate at sight: "Sunt et belli, sicut pacis, jura, justeque ea non minus quam fortiter didicimus gerere. Arma habemus non adversus eam ætatem, cui etiam captis urbibus parcitur, sed adversus armatos et ipsos, qui, nec læsi nec lacessiti a nobis, castra Romana ad Veios oppugnarunt. Eos tu, quantum in te fuit, novo scelere vicisti; ego Romanis artibus, virtute, opere, armis, sicut Veios, vincam." |
| 100 | |

GRAMMAR SCHOOL. *Time*, 1 *hr* 30 *min.*

## Greek and Roman History.

H. S. BRIDGES, M. A., Ph.D., Examiner.

| Values | | |
|---|---|---|
| 15 | 1. | Draw a map of the Peloponnesus, showing its divisions, chief rivers and towns with ancient names. |
| 10 | 2. | Relate the leading events of the 2nd Messenian War, or of the 1st Persian invasion. Give dates. |
| 10 | 3. | Describe the constitution established by Solon at Athens. |
| 10 | 4. | Describe the situation of the following places and relate in detail any important events connected with any *one* of them: Mycale, Ithome, Ægospotami, Potidæa, Artemisium. |
| 10 | 5. | What religious institutions were attributed to Numa, and what political institutions to Romulus? |
| 10 | 6. | State what you understand by the terms patricians and plebeians. In what year was the Roman Republic established? |
| 10 | 7. | What was the cause of the first secession of the Plebs? When did it take place? What did the Plebs gain by it? |
| 10 | 8. | Give the dates of the following: Overthrow of the Decemvirs; 2nd Punic War; 1st Mithridatic War; War with Jugurtha; Appointment of 1st Dictator; Destruction of Carthage. |
| 15 | 9. | Sketch briefly the life of Sulla. Mention the chief reforms which he made in the Roman Constitution. |
| 100 | | |

GRAMMAR SCHOOL. **Spherical Trigonometry.** *Time*, 1 *hr.* 30 *min.*

THOMAS HARRISON, M.A., LL.D., Examiner.

| Values | |
|---|---|
| 10 | 1. When are two spherical triangles said to be polar with respect to each other? Represent them by a diagram and show that the number of degrees in an angle of the one plus the number of degrees in the corresponding side of the other is equal 180. |
| 10 | 2. By the aid of Napier's rules write down the ten formulæ which express the relations between the sides and angles of a right spherical triangle. |
| 10 | 3. Prove one of the ten formulæ referred to in question (2). |
| 20 | 4. In a right spherical triangle, being given the side $a$ and the opposite angle $A$ show how to find the remaining parts. |
| 25 | 5. In an oblique spherical triangle prove $$\cos \tfrac{1}{2}(A+B) = \frac{\cos \tfrac{1}{2}(a+b)}{\cos \tfrac{1}{2} c} \operatorname{Sin} \tfrac{1}{2} C.$$ |
| 25 | 6. In an oblique spherical triangle given two sides and the including angle show how to find the remaining parts. |
| 100 | |

GRAMMAR SCHOOL. *Time*, 1 *hr.* 30 *min*

## Plane and Solid Geometry.

THOMAS HARRISON, M.A., LL.D., Examiner.

| Values | |
|---|---|
| 15 | 1. The internal and external bisectors of the vertical angle of a triangle divide the base internally and externally in the ratio of the other two sides. |
| 15 | 2. The rectilineal figure on the hypotenuse of a right angled triangle is equal to the sum of the similar and similarly described figures on the other two sides. |
| 15 | 3. If three lines are in continued proportion, the first is to the third as any rectilineal figure described on the first is to a similar and similarily described figure on the second. |
| 20 | 4. Describe a rectilineal figure which shall be similar to one and equal to another given rectilineal figure. |
| 15 | 5. How are the solid angles formed in each of the five regular polyhedra, viz.: the tetrahedron, the cube, the octahedron, the dodecahedron and the icosahedron? |
| 20 | 6. Every solid angle is contained by plane angles which are together less than four right angles. |
| 100 | |

GRAMMAR SCHOOL. **Algebra.** *Time*, 1 *hr.* 30 *min.*

THOMAS HARRISON, LL.D., Examiner.

| Values | |
|---|---|
| 10 | 1. If $ax+by+cz=0$ and $a'x+b'y+c'z=0$ Prove $\frac{x}{bc'-b'c}=\frac{y}{ca'-c'a}=\frac{z}{ab'-a'b}$ Notice that if we let each of these fractions equal $r$, say, then $x=(bc'-b'c)r$, $y=(ca'-c'a)r$, $z=(ab'-a'b)r$ |
| 15 | 2. Employ the results of question (1) to prove that if $2x+3y-5z=0$ and $x-2y+4z=0$ then will $y^2-z^2=30x^2$ |
| 20 | 3. Solve $ax+by+cz=d$ $a'x+b'y+c'z=d'$ $a''x+b''y+c''z=d''$ by the method of undetermined multipliers (that is, you multiply the first by $l$, say, the second by $m$ and the third by $n$, and add; you then assume that $l$, $m$, and $n$ are such that the coefficients of $y$ and $z$ will vanish). In determining the values of $l$, $m$, $n$, and thereby of $x$ you are expected to use the results of question (1) to shorten the work. |
| 10 | 4. Rationalize the denominator of $\frac{1}{2-\sqrt{3}}$ and afterwards find the value of the fraction to three places of decimals. What is the advantage gained in rationalizing the denominator before you proceed to compute the value? |
| 20 | 5. Prove the formula for finding the number of permutations of $n$ things taken $r$ at a time. Shew also that the number of permutations $=\angle r$ times the number of combinations. |
| 15 | 6. Expand $e^x$ and $e^{-x}$ and add the results. What is $e$? |
| 10 | 7. Expand $\left(1+\frac{1}{n}\right)^{nx}$ by the Binomial theorem. |
| 100 | |

GRAMMAR SCHOOL. **General Chemistry.** *Time, 1 hr. 45 min.*

PROF. L. W. BAILEY, M.A., Ph.D., F.R.S.C., Examiner.

NOTE.—*Six questions make a full paper.*

1. Express by equations the successive steps by which baking soda is obtained from common salt; and (2) those by which from sodium carbonate we may obtain sodium chloride, sodium sulphate, and sodium nitrate.

2. Represent by formula the composition of nitro-glycerine and compare it with that of gunpowder. What are in each case the products of explosion?

3. Iron is treated with sulphuric acid, and to the product ammonia is added. What is the final result? Formulate all the reactions.

4. What chemical changes occur in the following cases: (1) When ammonium nitrate is heated; (2) when copper is heated with strong sulphuric acid; (3) when litharge is heated on charcoal; (4) when steam is passed over hot coals; when sugar ferments? Formulate all reactions.

5. What is the difference between a hydro-carbon and a carbo-hydrate. Name, with examples, the principal groups into which each is subdivided.

6. Explain, with illustrations, the relations of the bodies known as alcohols, ethers, and fatty acids, and give the formulas of those of most importance in the arts.

7. Represent *graphically:* A molecule of hydrogen, an atom of chlorine, a molecule of water, a molecule of nitric acid. What is the relative weight of each?

8. How much potassium chlorate is needed to yield 10 lbs. of oxygen?

GRAMMAR SCHOOL.

*Time, 1 hr. 45 min.*

# Botany and Vegetable Physiology.

PROF. L. W. BAILEY, M.A., Ph.D., F.R.S.C., Examiner.

NOTE—*Six questions, which must include Nos. 7 and 8, make a full paper.*

## PART I.

*1 hour, without text.*

1. How would you distinguish between an umbel and a cyme? Between a tendril-like leaf and a branch? Between a root-stock and a root? Between a moss and a fern? Between a corm and a bulb?
2. Explain the agents by which absorption, circulation, and exhalation are effected in plants, with their chemical results.
3. Give in tabular form an analysis of flower clusters.
4. Trace the leaf through its more important modifications and explain their object.
5. Describe some of the possible changes accompanying the conversion of a flower into fruit.
6. Explain the nature of the following parts: Pith, cambium layer, receptacle, bast, stomata, root tips.
7. Make a tabular analysis of the plant upon your desk.

## PART II.

*45 min., with text.*

8. Determine the series, class, sub-class, order, genus, and species of the plant you have analyzed, writing out, as found in the text, every line necessary to read in reaching its complete determination.

GRAMMAR SCHOOL. *Time, 1 hr. 30 min.*

## Physiology and Hygiene.

PROF. L. W. BAILEY, M.A., Ph.D., F.R.S.C., Examiner.

NOTE — *Six questions, including No. 8, make a full paper.*

1. Describe the nature of the following joints, viz.: (1) That between the head and neck; (2) That of the elbow; (3) That of the ankle, and explain the nature of the leverages in each case.

2. Classify the different kinds of foods. In what parts of the system are they severally digested, and by what special agencies? What is the special use of each?

3. Describe fully the structure of the skin. What several purposes does it serve? What is the relation to the skin of the hair and nails?

4. Explain the nature of the following: Secretion, fatty degeneration, coagulation of blood, palpitation of the heart, near-sightedness, paralysis.

5. Explain fully the apparatus involved in any two of the following processes: Swallowing, chewing, hearing, sight, breathing, absorption.

6. Where and what are the following: Parotid glands, pylorus, fontanelles, fibula, gall-bladder, glottis, thoracic duct.

7. State what you know of the general organization of the brain and as to the functions of its separate parts.

8. What are the conditions and what the results of alcoholic fermentation? What are the essential differences between wines, malt liquors, and spirits? What is the special effect of alcoholic liquors on the liver?

GRAMMAR SCHOOL.

*Time, 2 hrs.*

# History of Education, Teaching and School Management.

G. W. MERSEREAU, A.M., Examiner.

| Values | |
|---|---|
| 15 | 1. Who may be regarded as the founder of modern scientific pedagogics? Into what three branches does he divide education? Write a short paragraph under each head. |
| 10 | 2. Define education and instruction. Show how far the one is dependent on the other. |
| 15 | 3. Name several recognized principles of method derived from psychology and illustrate their application in the teaching of any *two* of the following subjects: Physics, Grammar, Botany, Arithmetic. |
| 15 | 4. Spencer says: "The rise of an appetite for any kind of knowledge implies that the unfolding mind has become fit to assimilate it, and needs it for the purpose of growth.....and the disgust felt towards any kind of knowledge is a sign that it is prematurely presented, or that it is presented in an indigestible form." Comment on this, giving illustrations of the points you advance. |
| 15 | 5. Define discipline and explain fully on what means you intend to rely to maintain discipline in your school. |
| 15 | 6. Distinguish between *growth* and *development* and state fully the conditions on which the latter depends. |
| 15 | 7. Make a weekly time table for an advanced department or high school. Give reasons for your *sequence* and *time*. |
| 100 | |

# GRAMMAR SCHOOL CLASS I.

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GRAMMAR SCHOOL and FIRST CLASS. *Time, 1 hr.*

## School System.

GEO. W. MERSEREAU, M.A., Examiner.

| Values | |
|---|---|
| 10 | 1. What are the distinctive features of our present school law? |
| 15 | 2. What officials are charged with the duty of administering the school law? Give a synopsis of the duties and powers of each. |
| 15 | 3. In what respects have the County School Fund and the District Assessment a bearing upon each other? What principles regulate the apportionment of the County Fund to Trustees? |
| 15 | 4. Give the chief means relied on for determining the character and securing the desired quality of school instruction. |
| 15 | 5. Name the different classes of license, the conditions under which they can be obtained and the remuneration provided for the holders of each. |
| 15 | 6. What are the provisions relating to "holidays," "vacations," "arbor day," "substitute days" and "visiting days"? |
| 15 | 7. Name the various kinds of school meetings. When and by whom may they be called? What business can be done? |
| 100 | |

GR. SCH. AND I. **Industrial Drawing.** *Time*, 1 *hr.*

J. VROOM, Examiner.

*Knowledge, design and execution will be valued in your answer. To obtain full credit for the latter, drawings must be not less than four inches in width. Freehand work required throughout.*

| Values | |
|---|---|
| 25 | 1. Name and draw from memory an example of any conventionalized plant form frequently used in ornament. |
| 15 | 2. Distinguish between balance and symmetry, by drawing a simple example of each. |
| 40 | 3. Make (*a*) a geometric outline drawing or elevation of an urn, vase, cup, or flagon, indicating a simple decoration in line or half-tint; and (*b*) a shaded drawing of the same as it would appear slightly below the level of the eye, with shadow falling to the right; *or*, draw the group of objects placed before you, with due attention to shading and perspective. |
| 20 | 4. Draw an ornament of radiate or interlacing forms suitable for wood carving in low relief, tinting to indicate the elevations and depressions of the surface. |
| 100 | |

# SUPERIOR SCHOOL.

SUPERIOR SCHOOL. **Latin.** *Time*, 1 *hr.* 30 *min.*

H. S. BRIDGES, M.A., Ph.D., Examiner.

| Values | |
|---|---|
| 40 | 1. Translate into English:<br>A. Caes. Bell. Gall. I., Cap. 36: Ad haec .....deteriora faceret. (or)<br>B. Caes. Bell. Gall. II., Cap. 19: Ubi prima impedimenta .....contenderunt. (or)<br>C. Verg. Aen. Bk. I., Vv. 286.....296: Nascetur pulchra .....ore cruento. |
| 12 | 2. Parse in (A): respondit, vicissent, vellent, victis, consuesse, uteretur; (or)<br>(B): abdita, fecerunt, pulsis, viderentur, adverso, contenderunt: or<br>(C): nascetur, terminet, accipies, positis, dabunt, vinctus. |
| 9 | 3. Decline throughout: carcer, vulnus, cupido, fons, and compare docilis, juvenis, utilis, similis, vetus. |
| 9 | 4. Write down in full: (1) perf. indic. act. of jubeo: (2) imperf. subj. pass. of facio: (3) pres. participle of eo. |
| 12 | 5. By what cases would you express a *point of time*, *duration*, the *agent*, and the *instrument* in Latin? Give a short example of each. |
| 18 | 6. Translate at sight: In prato quondam rana conspexit bovem, et tacta, invidiâ tantae magnitudinis rugosam inflavit pellem; tum natos suos intterogavit, an bove esset latior. Illi negaverunt. Rursus intendit cutem majore nisu et simili quaesivit modo, quis major esset. Illi dixerunt bovem. |
| 100 | |

Rugosam pellem = wrinkled skin, prato = meadow.
natos = offspring, quondam = once.
an = whether.
cutem = skin.
nisu = effort.

SUPERIOR LICENSE. **Practical Mathematics.** *Time, 1 hr*

THOMAS HARRISON, M.A., LL.D., Examiner.

| Values | | |
|---|---|---|
| 15 | 1. | One angle of a triangle is 30° and the sides containing it are 8 and 13. Find the area of the triangle. |
| 15 | 2. | How many times does the circumference of a circle contain the radius? Find the number of seconds in an arc equal in length to the radius. |
| 15 | 3. | Shew how to solve a triangle when two sides and the included angle are known. |
| 15 | 4. | Find the sine, cosine, tangent, secant, cosecant and cotangent of an angle of 45°. |
| 40 | 5. | From the following measurements of a field find its area in acres : |
| 100 | | |

| LEFT OFFSET. | CHAIN LINE. | RIGHT OFFSET. |
|---|---|---|
| 0 | 500 | 0 |
| 200 | 400 | 600 |
| 300 | 300 | 500 |
| 400 | 200 | 400 |
| 320 | 100 | 350 |
| 200 | 0 | 300 |

# SUP. SCHOOL AND CLASS I.

CLASS I. and SUPERIOR LICENSE. *Time*, 1 *hr.* 30 *min*

## Algebra.

THOMAS HARRISON, M.A., LL.D., Examiner.

NOTE — *Candidates for Class I. may omit the last question and for them the otherquestions will each count ten. Candidates for Superior Class must answer last question.*

| Values | |
|---|---|
| 9 | 1. Simplify: $(x+y)^3+(x+y)^2y+(x+y)y^2-(3x^2y+5y^2x+2y^3)$. |
| 9 | 2. Find the greatest common measure of $x^4+x^2-6$ and $x^4-3x^2+2$. |
| 9 | 3. Find the least common multiple of $x^2-1$, $x^3+1$, $x^3-1$, and $x^6+1$. |
| 9 | 4. Reduce to its lowest terms $\dfrac{x^8+a^8}{x^4+a^2x^2+a^4}$ |
| 9 | 5. Find the value of $\dfrac{x^2-(a+b)x+ab}{x^2-(a+c)x+ac}+\dfrac{x^2-c^2}{x^2-b^2}$ |
| 9 | 6. Find the value of $\dfrac{b}{(a-b)\ (a-c)}+\dfrac{a}{(b-a)\ (b-c)}$ |
| 9 | 7. Find a number such that the sum of its fifth and its seventh shall exceed the difference of its fourth and its seventh by 99. |
| 9 | 8. Solve: $\dfrac{3-2x}{1-2x}-\dfrac{2x-5}{2x-7}=1-\dfrac{4x^2-1}{7-16x+4x^2}$ |
| 9 | 9. Solve: $ax+by+c=0$<br>$a'x+b'y+c'=0$<br>and shew that $\dfrac{x}{bc'-b'c}=\dfrac{y}{ca'-c'a}=\dfrac{1}{ab'-a'b}$ |
| 9 | 10. Solve: $ax^2+bx+c=0$ and find the sum and also the product of its roots. |
| 10 | 11. $x^2+3xy=54$<br>$xy+4y^2=115$. Find $x$ and $y$. |
| 100 | |

CLASS I and SUPERIOR LICENSE. *Time, 1 hr.*

# Natural Philosophy and Physics.

THOMAS HARRISON, LL.D., Examiner.

NOTE.—*Ten questions make a full paper. Candidates for Superior License must take 1 and 2.*

1. Define centre of gravity. Find the centre of gravity of a triangle.
2. Draw a system of pulleys in which the weight raised is five times the power employed to raise it.
3. Describe how a thermometer is made and graduated.
4. What is meant by specific heat?
5. Describe a simple experiment to determine the different conducting powers for heat of different substances.
6. Describe the construction of an electric cell and explain the changes which take place when it is allowed to send a current.
7. Describe any means for measuring the strength of an electric current.
8. How is it shown that sound is not propagated in a vacuum? On what does the pitch of a note depend?
9. Describe any means for comparing the intensities of two lights.
10. What are the laws of reflection of light.
11. Explain the action of the hydraulic press.
12. Describe the working of the common pump.
13. In what way does the forcing pump differ from the common pump?
14. Why does a short pendulum vibrate more rapidly than a long one?
15. How is a clock constructed and regulated?
16. What is the explanation of the phenomenon we call "dew."
17. Mention some phenomena similar to dew.
18. How are clouds formed?

# CLASS I.

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CLASS I. **English Language.** *Time*, 1 *hr.* 30 *min*

H. S. BRIDGES, M.A., Ph.D., Examiner.

NOTE — *A choice is allowed between 5 and 7.*

| Values | |
|---|---|
| 20 | 1. Analyze both generally and particularly:<br>So saying, her rash *hand* in evil hour<br>*Forth reaching* to the fruit, she plucked, she *ate!*<br>Earth felt the wound; and *Nature from* her seat,<br>Sighing *through all* her works, gave signs of woe<br>*That all was lost.* |
| 10 | 2. Parse the italicized words in this passage. |
| 10 | 3. Explain the following: Syntax, concord, government. Specify the chief kinds of concord and government in grammar. |
| 15 | 4. To what great family of languages does the English belong? Under what group is it properly classed? Mention the other languages of the same group. |
| 15 | 5. The Keltic element in English is of three kinds. Specify them, and give examples of Keltic words of the first kind. |
| 15 | 6. What proportion do words of Anglo-Saxon origin bear to those from classical sources? Write half a dozen lines on any subject you choose, using only words of Anglo-Saxon origin. |
| 15 | 7. Give the derivation of each of the following: Curfew, dandelion, vinegar, dropsy, damson, belfry, stoic, orchard, dirge, proxy. |
| 10 | 8. Distinguish between *rhyme* and *rhythm*. Specify the four conditions necessary for perfect rhyme. |
| 100 | |

CLASS I. **English Literature.** *Time*, 1 *hr.* 30 *min.*

H. S. BRIDGES, M.A., Ph.D., Examiner.

*N. B.— Only two of the questions based on the Essay on Warren Hastings are to be answered.*

| Values | |
|---|---|
| 15 | 1. State concisely your conception of the character of Shylock. Mention passages which serve to illustrate his hatred and his avarice. |
| 15 | 2. Explain the allusions in the following:<br>(*a*) So is Alcides beaten by his page.<br>(*b*) Which makes her seat of Belmont, Colchos' strand<br>And many Jasons come in quest of her.<br>(*c*) Thou gaudy gold,<br>Hard food for Midas, I will none of thee.<br>(*d*) Medea gathered the enchanted herbs<br>That did renew old Aeson. |
| 20 | 3. In what connection do the following lines occur? Name the speaker in each case. Briefly continue any one of these quotations:<br>(*a*) You have too much respect upon the world,<br>They lose it that do bury it with much care.<br>(*b*) Let none presume<br>To wear an undeserved dignity.<br>(*c*) The world is still deceived with ornament.<br>(*d*) The man that hath no music in himself,<br>Is fit for treasons, stratagems, and spoils. |
| 10 | 4. Discuss the meaning of the following passage:<br>O, my Antonio, I do know of these,<br>That therefore only are reputed wise<br>For saying nothing; who, I am very sure,<br>If they should speak, would almost 'curse' those ears<br>Which, hearing them, would call their brothers fools. |
| 20 | 5. State briefly the arguments based on external evidence given by Macaulay in the Essay on Warren Hastings to prove that Philip Francis was the author of the "Letters of Junius." |

15 6. Bring out the point of the comparison in the following passage by explaining clearly the historical allusions:

> "He had just as lively an idea of the insurrection at Benares as of Lord George Gordon's riots, and of the execution of Nuncomar as of the execution of Dr. Dodd."

20 7. What does Macaulay state as the peculiar qualifications of Burke for conducting the impeachment of Warren Hastings?

15 8. Quote at least 10 lines of the passage beginning with the words: "The place was worthy of such a trial."

100

CLASS I. **Geometry.** *Time*, 1 *hr.* 30 *min.*

THOMAS HARRISON, M.A., LL.D., Examiner.

| Values | | |
|---|---|---|
| 11 | 1. | To inscribe in a triangle a rhombus, having one of its angles coincident with an angle of the triangle. |
| 11 | 2. | Shew that any side of a triangle is greater than the difference between the other two sides. |
| 11 | 3. | To describe a square that shall be equal to a given rectilineal figure. |
| 12 | 4. | If a straight line be bisected and produced to any point the rectangle contained by the whole line thus produced and the part of it produced together with the square on half the line bisected is equal to the square on the straight line which is made up of the half and the part produced. |
| 11 | 5. | If from a point without a circle two secants be drawn shew that the rectangle contained by one secant and its segment external to the circle, is equal to the rectangle contained by the other secant and its external segment. |
| 11 | 6. | To inscribe a regular pentagon in a given circle. |
| 11 | 7. | In a given circle to inscribe a triangle equiangular to a given triangle. |
| 11 | 8. | To find a mean proportional between two given straight lines. |
| 11 | 9. | If the vertical angle of a triangle be bisected by a line which cuts the base prove that the segments of the base will have the same ratio which the other sides of the triangle have to each other. |
| 100 | | |

CLASS I. **Book-keeping.** *Time*, 1 *hr.*

J. VROOM, Examiner.

| Values | | |
|---|---|---|
| 15 | 1. | What is the difference between Single Entry and Double Entry? Which would you prefer, and why? |
| 15 | 2. | Journalize the following: — Bought of J. C. White goods to the amount of $3,245. Gave in payment, cash $1,000, John Black's note for $500, due in three months, less $7.50 discount, my own note for $600; balance to remain on account. |
| 15 | 3. | What is meant by Stock or Capital Account? For what is it credited and debited, and what does the difference represent? |
| 10 | 4. | Write out the form of an accepted draft for $500, drawn by Robert Smith on John Sloan. |
| 10 | 5. | What is meant by Assets? Invoice? Consignee? Inventory? Voucher? |
| 20 | 6. | What entries appear on the credit side (*a*) of Cash Account; (*b*) of Bills Payable account; (*c*) of Bills Receivable account? (*d*) of Merchandise account; (*e*) of Loss and Gain account? |
| 15 | 7. | My wood lot cost me $400. Swamped a road through it at a cost of $30. Took off it 40 cords of wood, which I sold for $3 per cord, paying $2 per cord for cutting and hauling. Sold 25,000 ft. of spruce logs, at $5 per thousand, delivered; and paid for cutting and hauling the spruce, $85. Paid taxes, $3. |
| 100 | | |

*Open a Ledger Account for the above lot, and post the several receipts and expenditures to show how the account now stands.*

FIRST CLASS. **Botany.** *Time, 1 hr. 45 min.*

PROF. L. W. BAILEY, M.A., Ph.D., F.R.S.C., Examiner.

NOTE.— *Six questions, including the last three, make a full paper.*

PART I. *1 hr., without text.*

1. What features of contrast can you draw between a pine, an ash, and a fern?
2. How can one determine the number of carpels in a given pistil?
3. Explain the botanical nature of a cone, an apple, a potato, a bean-pod, a thorn, a tendril.
4. Distinguish between cohesion and adhesion in the parts of a flower. Name two flowers illustrating each peculiarity.
5. Mention five native trees or shrubs in which the flowers appear before the leaves. Among these distinguish between such as are monoecious and such as are dioecious.
6. (*a*) What features of the flower and leaves of the plant on your desk justify you in referring it to, or excluding it from the Rose family? the Pulse family? the Aster family? (*b*) Make a drawing of its flower illustrating its structure.
7. Make a tabular analysis of the plant on your desk.

PART II. *45 min., with text.*

8. Determine the series, class, sub-class, order, genus, and species of the plant you have analyzed, writing out, as found in the text, every line necessary to read in reaching its complete determination.

CLASS I. *Time, 1 hr. 30 min.*

# Chemistry and Agriculture.

PROF. L. W. BAILEY, M.A., Ph.D., F.R.S.C., Examiner.

NOTE — *Six questions make a full paper.*

## PART I.

1. In what several forms are phosphates supplied to plants? Explain wherein they differ, and the means by which the less effective are converted into the more effective forms?

2. How would you proceed to demonstrate the presence therein of the several constituents of the atmosphere? What relation has each of these constituents to the life of plants?

3. Name the principal *albuminoids* found in plants. How do they differ in their properties? What similar substances are found in animals?

4. From what source are soils derived? What are the agents concerned in their production? Which constituents are useful in plant growth, and why?

5. Of what does bread consist? What chemical changes are involved in its manufacture?

6. What relation has the temperature of soils to the growth of plants? Why is a wet soil a cold one?

## PART II.

7. What reactions are possible among the following substances: Carbonate of lime, quartz, caustic lime, sal ammoniac, sulphuric acid, common salt? Give the reactions in each case.

8. State how you would demonstrate experimentally the composition of marble, giving all the reactions involved.

9. Give graphic formulæ for ammonia gas, ammonium chloride, and ammonium sulphate. From these formulæ deduce the valence of the elements and radicals involved.

10. State what you know of the occurrence (free or in combination), preparation, and properties of carbonic acid gas, hydrogen, chlorine, sulphur, sodium carbonate.

11. What properties, physical and chemical, would you regard as distinctive of each of the following minerals: Amethyst, selenite, orthoclase, calcite, graphite. What is the chemical composition of each?

CLASS I. **Physiology and Hygiene.** *Time, 1 hr. 30 min.*

PROF. L. W. BAILEY, M.A., Ph.D., F.R.S.C., Examiner.

NOTE.— *Five questions, including No. 6, make a full paper.*

1. Of what are bones composed? What several purposes do they serve, and by what special features are they made to serve these purposes more effectually?
2. Describe the structure of the back-bone. Why is it often called the spine? Why is it naturally curved and how? What conditions may lead to unnatural curvature?
3. Explain the following: Opposing muscles; beating of the heart? movements of the pulse; perception of pain; production of voice.
4. What are the effects of, and what is proper exercise?
5. What several parts are to be distinguished in the structure of the teeth; What differences of form do they exhibit and why? What is the nature of their connection with the jaws?
6. What is the special effect of the use of alcohol upon the skin, upon the kidneys, upon the throat and voice?

CLASS I. **Teaching and School Management.** *Time, 2 hrs.*

GEO. W. MERSEREAU, M.A., Examiner.

| Values | | |
|---|---|---|
| 18 | 1. | Name any recognized principle of method derived from a study of Psychology and illustrate its application in the teaching of any subject of school instruction. |
| 16 | 2. | Distinguish between *growth and development* and show clearly the condition on which the latter depends. |
| 16 | 3. | What is memory? What are its *use* and *abuse* in education? How may the memory be trained? |
| 16 | 4. | In what way do you intend to teach the first steps of reading? defend your method (*a*) on scientific and (*b*) on practical grounds. |
| 16 | 5. | Comment on the following: "The amount and kind of punishment inflicted at school is one of the best tests of a teacher's capacity and fitness for the station he occupies." |
| 18 | 6. | Write a sketch of the life and work of Comenius or Pestalozzi and show his influence on the progress of educational reform. |
| 100 | | |

# CLASS I. AND II.

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CLASS I. AND II. **Reading.** *Time*, 1 *hr*

MISS S. JEAN LANDERS, Examiner.

NOTE — *Candidates for Class II. will write five questions only.*

1. Why is it good to give pupils some physical exercise at the beginning of a reading lesson? and name some exercise that you would give.

2. What is meant by correct pronunciation and distinct articulation respectively?

3. Name the different slides or inflections in use. Illustrate by example.

4. Please mark the following with regard to inflection:

   There was silence and I heard a voice saying,
   "Shall mortal man be more just than God?
   Shall a man be more pure than his maker?"

5. (*a*) Why is pitch or modulation so necessary to good reading?
   (*b*) Name the different degrees of pitch and tell when they are employed.
   (*c*) What pitch of voice should be used in the following sentence?

   Hurrah for the sea; the all glorious sea!
   Its might is so wondrous its spirit so free!

6. What mistakes are common in the pronunciation of the following words: Window, posts, often, running, cemetery, and why?

7. Classify the following consonants as breath sounds, voice sounds, and liquids, and explain: f, w, z, y, m, t, g, r, b, ng.

CLASSES I., II. **Domestic Economy.** *Time, 1 hr. 30 min.*

MRS. M. M. DESOYRES, Examiner.

THEORY.

1. Washing.
   (*a*) Give your experience as to whether hot water causes the color in clothes to change more than that which is moderately warm?
   (*b*) Why is it that clothes sometimes scorch under the iron? How do you prevent starched things from sticking in ironing?
2. House-Cleaning.
   (*a*) Give a résumé of your Text Book's description of a good house-keeper's method of sweeping and dusting.
   (*b*) What precautions can you mention to prevent the close, unpleasant odor one finds in bedrooms?
3. What hurts the lungs?
   1. Overwork;
   2. Bad air;
   3. Dust. Discuss.
4. How do you keep iron vessels and stoves shining?
5. The body must be kept warm with a warmth from within. Explain fully.
6. Give a complete outline of the introduction of your Text Book on this subject.

PRACTICAL.

1. Work a button-hole.
2. Give an example of your seaming.
3. Hem a portion of your cotton. Make a tuck, and do some feather-stitching.

# CLASS II.

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CLASS II. **English Language.** *Time*, 1 *hr.* 30 *min.*

H. S. BRIDGES, M.A., Ph.D., Examiner.

| Values | | |
|---|---|---|
| 25 | 1. | Give general and particular analysis of:<br>*There scattered oft*, the *earliest* of the year,<br>By hands unseen, *are showers* of violets *found*;<br>The *red-breast* loves to build and *warble* there<br>And little footsteps lightly *print* the *ground*. |
| 11 | 2. | Parse the words in italics in this passage. |
| 15 | 3. | Write brief notes showing the etymology of: bachelor, drake, father, madam, husband, sir. |
| 9 | 4. | Explain the syntax of the objective case in each of the following: (*a*) He waited all night: (*b*) The book is worth a shilling: (*c*) They dreamt the future flight. |
| 10 | 5. | Give five examples (1) of verbs of the strong conjugation, (2) of verbs of the weak conjugation, and write down their principal parts. |
| 15 | 6. | How does the relative *that* differ from the relative *who?* Give rules for the correct use of the former. |
| 15 | 7. | Explain the following: tautology, circumlocution, postponed preposition. Frame or quote examples from your text-book to illustrate the above defects. Rewrite in proper form the examples given. |
| 100 | | |

CLASS II. **English Literature.** *Time*, 1 *hr.* 30 *min*

H. S. PRIDGES, M.A., Ph.D., Examiner.

1. (*a*) Name the authors of the following quotations:
   (*b*) The poems from which each quotation is made:
   1. "A murmur of the restless deep
      Was blent with every strain."
   2. "Far from the madding crowd's ignoble strife."
   3. "Then rose from sea to sky the wild farewell."
   4. "Theme of primeval prophecy
      Be still the poet's theme."

2. Mention some important facts in connection with the authors you have named?

3. Give the reference or write brief notes on the italicized words or phrases in the following:
   1. "Again the *day-star gilds the gloom*."
   2. "Let the *dead past bury its dead*."
   3. "*Me thinks* thy *jubilee* to keep."
   4. "Thou *fliest the vocal vale*."

4. Quote from memory the first four lines of "Lochiel's Warning," and state the facts upon which the poem is founded.

5. Give the derivation of *animated*, *mansion*, *exhausted*, *ignoble*, and write down other derivatives from the same root.

6. Explain the following figures of speech: Personification, metonymy, hyperbole, and quote at least one example of each from the poems given in Reader V.

CLASS II. **Geometry.** *Time, 1 hr. 30 min*

THOMAS HARRISON, M.A., LL.D., Examiner.

| Values | | |
|---|---|---|
| 20 | 1 | To a given straight line to apply a parallelogram which shall be equal to a given triangle, and have one of its angles equal to a given angle. |
| 20 | 2. | If two triangles have two sides of the one equal to two sides of the other, each to each, but the angle contained by the two sides of one of them greater than the angle contained by the two sides equal to them of the other; the base of that which has the greater angle must be greater than the base of the other. |
| 20 | 3. | If a straight line be divided into two equal parts and also into two unequal parts, the rectangle contained by the unequal parts, together with the square on the line between the points of section is equal to the square on half the line. |
| 20 | 4. | If a straight line be divided into two equal and also into two unequal parts, the squares on the two unequal parts are together double of the square on half the line and of the square on the line between the points of section. |
| 20 | 5. | What are the three methods of finding the area of an irregular polygon? |
| 100 | | |

CLASS II. **Algebra.** *Time*, 1 *hr.* 30 *min*

THOMAS HARRISON, M.A., LL.D., Examiner.

| Values | |
|---|---|
| 10 | 1. Employ a formula to find the product of $x^2+xy+y^2$ and $x^2-xy-y^2$ |
| 10 | 2. Divide: $x^3-3xy-y^3-1$ by $x-y-1$. |
| 10 | 3. Resolve into factors $(a+b)^2-11c(a+b)+30c^2$. |
| 10 | 4. Simplify: $\frac{a}{a+b}+\frac{ab}{a^2-b^2}-\frac{a^2}{a^2+b^2}$ |
| 10 | 5. Solve: $4(3x-2)-2(4x-3)-3(4-x)=0$ |
| 12 | 6. Solve: $\frac{5x-3}{7}-\frac{9-x}{3}=\frac{5x}{2}+\frac{19}{6}(x-4)$ |
| 13 | 7. Solve: $(x-a)(x-b)=(x-a-b)^2$ |
| 13 | 8. A hare takes four leaps to a greyhound's three but two of the greyhound's leaps are equivalent to three of the hare's; the hare has a start of fifty leaps; how many leaps must the greyhound take to catch the hare? |
| 13 | 9. $19x-21y=100$<br>$21x-19y=140$. Find $x$ and $y$. |
| 100 | |

CLASS II. **Physics and Botany.** *Time, 1 hr. 45 min.*

PROF. L. W. BAILEY, M.A., Ph.D., F.R.S.C., Examiner.

NOTE.— *Seven questions, including the last two, make a full paper.*

1. On a warm day in April, what is the temperature of a mixture of water and snow (slush) in the streets? How would the temperature of the melting snow be affected (*a*) by throwing some salt into it? (*b*) by a rise in the temperature of the air? Account for the facts.

2. How would you determine the pressure of the air at a given place? Prove that your method would give the correct result.

3. What visible effects would follow if a piece of sealing-wax, which has been rubbed with flannel, were brought near successively to a needle, a pith-ball, a zinc nail, a copper wire, each freely suspended by a silk thread? What would follow if a magnet were brought near them? Account for the effects in each case.

4. In what physical properties do ice and liquid water differ? Account for these differences as far as you can.

5. What is a Carpel? Mention several ways of determining the number of carpels in a flower.

6. Explain the following terms, and give two or more examples, from native plants, illustrative of each: Tuber, *Catkin*, Bract, Key-fruit, *Deciduous*, Superior, Pistillate. Give derivation of terms in Italics.

7. (*a*) What features of the flower and leaves of the plant on your desk justify you in referring it to, or excluding it from the Rose family? — the Pulse family? — the Aster family? (*b*) Make a drawing of its flower illustrating its structure.

8. Make a tabular analysis of the plant on your desk.

SECOND CLASS. *Time, 1 hr. 30 min.*

# Chemistry and Agriculture.

PROF. L. W. BAILEY, M.A., Ph.D., F.R.S.C., Examiner.

NOTE — *Six questions make a full paper.*

## PART I.

1. What are alluvial soils, peaty soils, sour soils, cold soils? and the special circumstances which determine each?
2. Name the chief artificial manures? the chief natural manures? From what sources are they respectively derived? and for what reason is each useful?
3. The atmosphere: How would you demonstrate its nature, weight, pressure, impurities?
4. Give some idea of the extent to which oxygen and carbonic acid exist in nature? What special part does each perform?
5. What is the composition of chalk? of bone? of earth? of clay? of ammonia? of milk? of butter?
6. What is meant by the "wear and tear" of the animal system? To what results does it lead? How are the injurious results balanced?

## PART II.

7. Classify chemically: Silica, ammonia, carbon dioxide, ammonium, chalk, calcium nitrate, gypsum. Give graphic formula of each.
8. What would be the chemical action of sulphuric acid on wood, chalk, salt, washing-soda and iron? Write reactions.
9. Give the names and chemical composition of four of the principal compounds of iron which occur in nature. Show how to distinguish them, and how to prove that they contain iron.
10. Formulate graphically and give the properties of chlorate of potash, calcium hydrate, lime, potassa, calcium chloride, hydrogen, ozone.
11. Some marble is dropped into a solution of hydrochloric acid, After the marble has disappeared, sulphuric acid is poured in. Account for the effects produced; distinguish the physical from the chemical changes involved and write the reactions.

CLASS II. **Physiology and Hygiene.** *Time, 1 hr. 30 min.*

PROF. L. W. BAILEY, M.A., Ph.D., F.R.S.C., Examiner.

NOTE — *Five questions make a full paper.*

1. Why is respiration a necessary process? What are its several results? By what means is it effected?
2. Explain the special office of the following parts: Heart, artery, capillaries, blood-corpuscles, parotid glands, epiglottis, pylorus.
3. What effect has the quality of the blood upon the general health? How is that quality affected by the use of alcohol?
4. In what respects does stomachal digestion differ from that of the duodenum (1) as to agents, and (2) as to results?
5. What special provisions, in the case of the intestines, adapt them to the work of absorption? How is the material absorbed subsequently disposed of?
6. What simple rules should govern the taking of food as to time, quantity and quality?

CLASS II. **Industrial Drawing.** *Time*, 1 *hr.*

J. VROOM, Examiner.

*Drawings to be at least four inches in width. Freehand throughout, except in the working drawings.*

| Values | |
|---|---|
| 25 | 1. Draw a trefoil or quatrefoil, with a simple radiate design in the centre. |
| 25 | 2. Draw two views of a right cone, with shading to express solidity. |
| 50 | 3. Draw the group of objects set before you, with due attention to shading and perspective; *or*, make working drawings on a proper scale of the woodwork of the desk at which you are sitting. |
| 100 | |

SECOND CLASS. *Time, 2 hrs.*

## Teaching and School Management.

GEO. W. MERSEREAU, A.M., Examiner.

| Values | | |
|---|---|---|
| 16 | 1. | State briefly how you intend to employ your time the first day you are in charge of a school. |
| 16 | 2. | What is memory? What is its use in education? How may it be abused? What is the best means of training it? |
| 16 | 3. | What is the value of Form Teaching? Outline a course of Form Lessons covering the first two years' work. |
| 16 | 4. | Shew how far the daily work and discipline of the school may subserve the purpose of moral culture. |
| 16 | 5. | "The power of *expression* is as important as the power of *thought*." Remark briefly on this and outline what you consider the best course to follow in training the language faculty. |
| 20 | 6. | What are the difficulties to be overcome in making a working programme? Shew how to provide a good working programme for a school of 50 pupils in *five* classes. |
| 100 | | |

SECOND CLASS. **School System.** *Time, 1 hr.*

GEO. W. MERSEREAU, M.A., Examiner.

| Values | | |
|---|---|---|
| 10 | 1. | What are the distinctive features of our school system? |
| 20 | 2. | State fully the use of the Register from the first day of the term till the return for the term is made out. |
| 20 | 3. | Explain the terms: "Legally authorized teaching days." "Substitute days." "Grand total days attendance." "Number of pupils daily present on an average." |
| 25 | 4. | State fully the nature of the Teacher's contract. |
| 25 | 5. | A male Teacher of the second class teaches half the number of "Teaching Days" in a year and receives a total salary of $175. Shew whence the salary is derived and the steps necessary to secure it. |
| 100 | | |

# CLASS III. AND FRENCH DEP.

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CLASS III. *Time*, 1½ *hrs*

## Teaching and School Management.

| Values | | |
|---|---|---|
| 25 | 1. | What are the methods of teaching the first steps in reading? Show how you would teach the first sentence? |
| 25 | 2. | Explain your methods of teaching numbers so as to enable your pupils to perform the fundamental operations accurately and quickly. |
| 25 | 3. | How do you propose to train your pupils [*a*] to speak correctly, [*b*] to be good spellers, [*c*] to be good writers. |
| 13 | 4. | By what means can you promote *regularity* and *punctuality* of attendance on the part of your pupils? |
| 12 | 5. | What rewards and what punishments will you use in your school? Why? |
| 100 | | |

CLASS III. **School System.** *Time*, 1 *hr*

1. Show how the District Assessment is levied and collected.
2. How can a Board of Trustees raise funds to carry on a school when the ratepayers refuse to vote an assessment?
3. [*a*] Who has power to exempt ratepayers from school taxes? [*b*] Under what conditions? [*c*] When must a ratepayer pay taxes in more than one District?
4. What are the provisions of the law and regulations in regard to school libraries?
5. How do you find the *grand total days attended by all the pupils* and "*Percentage of enrolled pupils daily present on an average?*"

CLASS III. **Industrial Drawing.** *Time*, 1 *hr*

1. Draw a free-hand example of each of the following: An Ogee Curve; a Simple Curve; An Ellipse; A Circle.

2. Draw free-hand a rosette illustrating symmetrical arrangement about the centre of a square.

3. Make a drawing of the object on the table, stating its position relative to the eye.

4. Make a working drawing of a cylinder 6 feet high and 2 feet in diameter, on a scale of $\frac{1}{2}$ inch to the foot.

CLASS III. **Hygiene and Temperance.** *Time*, 1 *hr*

1. Describe the general build of the body, and tell what you know about cells and tissues.

2. Describe the bones of the arm. Explain the use of bones.

3. Give some suggestions about the health of the bones, and show the effect upon the bones of the use of alchohol and tobacco.

4. What is muscle? Mention and describe some of the important muscles of the body, and show how they are adapted to different uses.

5. How does alcohol affect the control of the muscles? What affect has its use upon the heart?

6. Why do you consider physical training and exercise an important matter in our school system?

7. What is *Poison?* Is alcohol a poison? Give your reasons for saying so. How does the alcoholic appetite differ from a natural appetite?

8. What is meant by *digestion?* Name the various steps in the process of digestion.

CLASS III. **Domestic Economy.** *Time, 1 hr*

PART I.

1. How do you prepare the following kinds of food for the sick: Beef tea, chicken broth, milk toast?
2. What suggestions can you make about the care of beds and bedding?
3. Give the outline of a lesson on the making of bread.
4. What do you understand by proper clothing?

PART II — PRACTICE.

Work the following on the cotton furnished you:

1. An ordinary sized button-hole.
2. Tear off a strip from your material and use it as you would tape to bind about 4 inches of your material on one end.
3. Put on a straight patch about 3 inches square.

CLASS III. **English.** *Time*, 1 *hr.* 30 *min.*

| Values | |
|---|---|
| 10 | 1. Give definition of *Noun*, *Verb*, *Adjective*, *Adverb*, *Preposition*, *Conjunction*, *Pronoun*. |
| 15 | 2. Distinguish between *Transitive* and *Intransitive* verbs; and between verbs in the *Active Voice* and in the *Passive Voice*. Give examples. Write the Past Indefinite Tense, Indicative Mood, both Active and Passive, of the verb *Strike*. |
| 5 | 3. Write out the Inflexions of the First and of the Third Personal Pronouns. |
| 15 | 4. Give example of the Infinitive Mood used (*a*) as subject of another verb, (*b*) as object of another verb, (*c*) as dependent on a noun or adjective. After what verbs is the sign of the Infinitive (*to*) omitted? |
| 10 | 5. What is a *Sentence?* Distinguish the three principal kinds of sentences. Give examples. |
| 10 | 6. Correct the following sentences, and give reasons:<br>I was told it was her.<br>It is better for you and I to go home.<br>Whom do you think told me.<br>I saw your friend, he that visited you last summer.<br>No one looked as if they were afraid.<br>He is stronger than me.<br>Sense, and not riches, win esteem.<br>The knife was laying on the table.<br>Every thought and feeling are opposed to it.<br>Do it like I do. |
| | 7. Analyze the following sentences and parse the words in italics: |
| 10 | [*a*] *Had I but served* my God with half the *zeal* I served my king, he *would* not in mine age<br>*Have left* me *naked* to mine enemies. |
| 12 | [*b*] We *thought, as* we hollowed his narrow *bed*,<br>And *smoothed down* his lonely pillow,<br>*That* the foe and the stranger *would tread* o'er his head<br>And *we far* away on the billow. |
| 13 | [*c*] I will tell *you what* to do: *Go* to the teacher and tell *her that that* problem *that* she *gave us* to *solve* is *too difficult*. |
| 100 | |

CLASS III. **Arithmetic.** *Time, 1 hr. 30 min.*

10 MARKS FOR EACH QUESTION.

1. A man invested $\frac{2}{3}$ of his capital in bank stock, and $\frac{3}{4}$ of the remainder in land, and had $3,000 left. What was his capital at first?

2. A man working $9\frac{3}{4}$ hours a day finishes his mowing in 6 days. In what time would he have finished it if he had worked 13 hours a day?

3. A man divided his estate among his 3 sons in proportion to their ages, which were 20, 23, and 25 years. The youngest got $4,000. What did each of the others get?

4. How much will the flooring of a room 30 feet long and 20 feet 6 inches wide cost, the plank being 2 inches thick and the price $12 a thousand?

5. What is the amount of $500 in 3 years at 6 per cent. per annum, compound interest?

6. What sum of money must be lent at simple interest for $3\frac{1}{2}$ years at 6 per cent. per annum to amount to $871.20?

7. Simplify: $\dfrac{2\frac{1}{4} - \frac{2}{3} \text{ of } 1\frac{5}{8}}{\frac{1}{5} \text{ of } 3\frac{1}{3} + \frac{1}{3}\frac{3}{6}}$

8. What part of a mile is $\frac{4}{5}$ of a rod?

9. Define *Measure*, *Common Measure*, and *Greatest Common Measure*. Find the G. C. M. of 153517 and 7389501522.

10. Find the cost of 0625 of 112 lbs. of sugar, when 1 lb. costs .0703125 of 16 shillings.

Fr. Dep. **Natural History.** *Time*, 1 *hr*

1. From what is lime obtained and how? From what is plaster of Paris obtained and how?

2. Of what minerals does granite consist? By what properties do you distinguish them from each other?

3. Of what use is the leaf — the stem — the flower to the plant?

4. What is slate? What are its more important uses? What properties make it suitable for those uses?

5. From what sources do plants derive their food? From which source do they obtain the greater part of it? Tell how you know in each case.

Fr. Dep. **French.** *Time, 1 hr. 30 min.*

Values

25 1. Translate into English the following:

L'écureuil *est* un *joli petit* animal qui n'est qu'à demi *sauvage*, et qui, par sa gentillesse, par sa docilité, par l'innocence de ses mœurs, mériterait d'être épargné; il n'est ni *carnassier* ni *nuisible*, quoiqu'il *saisisse* quelquefois des oiseaux; sa nourriture *ordinaire* sont des fruits, des amandes, des noisettes, de la faîne et du gland; il est propre, leste, *vif* très alerte, très *industrieux*; il a les yeux *pleins* de feu, la physionomie fine, le corps *nerveux*, les membres très *dispos*: sa jolie figure est encore rehaussée, parée par une belle queue en forme de panache, qu'il relève jusque dessus sa tête, et sour laquelle il se *met* à l'ombre. Il est, pour ainsi *dire*, moins quadrupède que les autres; il se tient ordinairement assis, presque debout, et se sert de ses pieds de devant, comme d'une main, pour *porter* à sa bouche; au lieu de se cacher sous terre, il est toujours en l'air; il approche des oiseaux par sa légèrete; il demeure comme eux sur la cime des arbres, parcourt les forêts en sautant de l'un à l'autre, y *fait* son nid, cueille les graines, boit la rosée, et ne descend à terre que quand les arbres sont agités par la violence des vents.

15 2. Write out the present indicative of the verbs in *italics*.

15 3. Write out the feminine plural of the adjectives in *italics*.

20 4. Translate the following sentences into French:

Does your watch gain or lose? It gains five minutes a day.
What does this book cost? One dollar and a half.
How long have you been at the Normal School? Four months.
We hope you will accompany us to the seaside.
I will accompany you, if you promise to return next week.
What ails you? I have caught a cold.
I think you are mistaken. We are not mistaken.
I always keep my promise.
Have the kindness to explain this sentence to me.

25 5. Write [in French] a letter to a School Trustee applying for the school. [Write not less than ten lines, and do not sign your own name].

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